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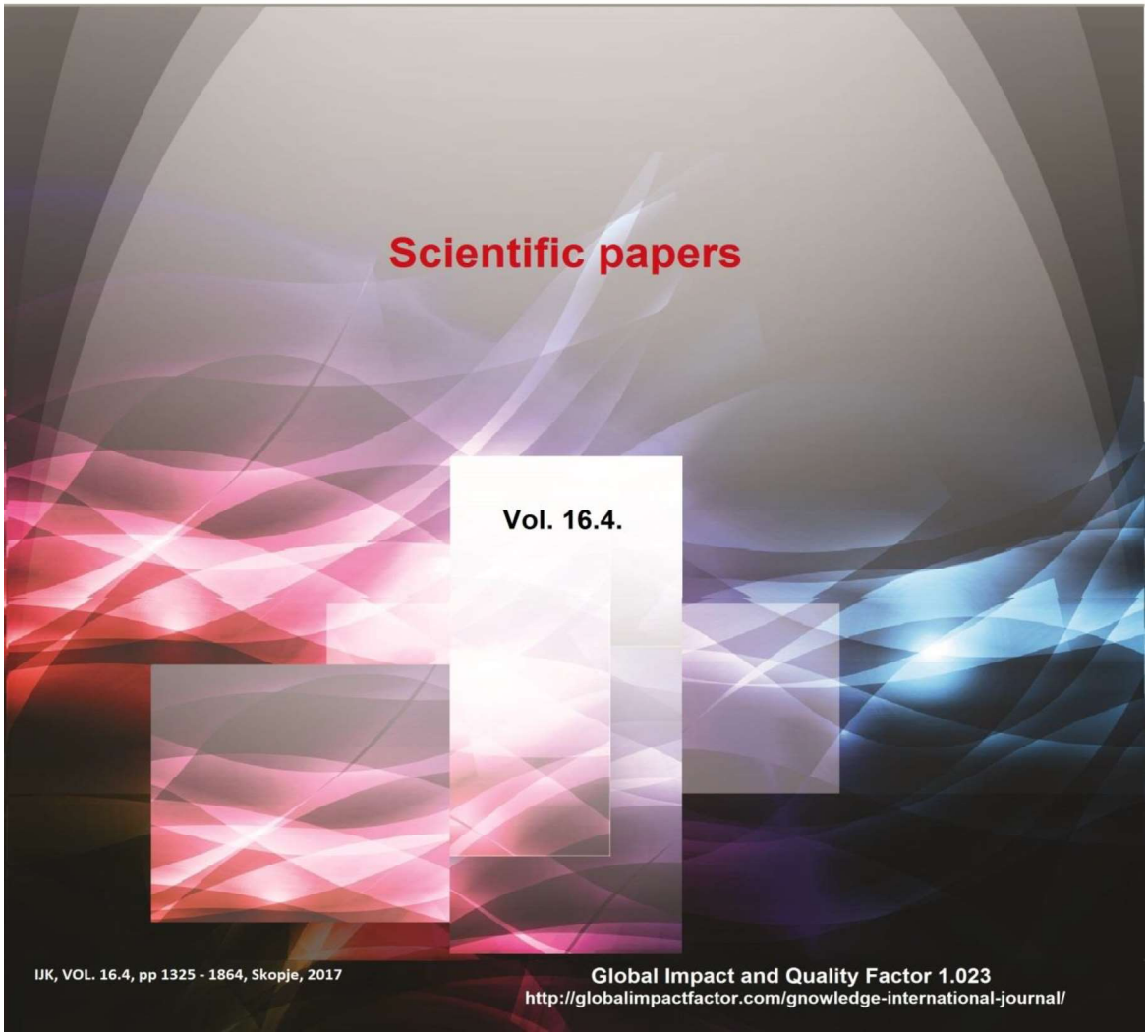

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EARLY POSTOPERATIVE REHABILITATION OF PATIENTS WITH TOTAL ENDOPROTHESIS OF THE HIP

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Abstract: The hip joint is one of the major joints of the human body, but some diseases, the most common arthritis can lead to partial or total destruction that can result in pain and problems with its function. Ruined joint hinder the movement and it's a major cause of disability and unbearable pain. When all conservative methods of recovery have completed without success, it's recommended restoring the joint by total endoprothesis. Replacing it with an artificial one of the biggest achievements of modern orthopedic surgery and general medicine.
Traditionally, physiotherapy is a routine component of recovery of a patient after endoprosthesis of the hip. It is known that disability and functional limitations continue one year after the operation, so that the effectiveness of kinesitherapy after discharge is a topical issue.
The objectives of physiotherapy at this stage are usually increased mobility and training of the patient exercises and precautions, having to prepare for his discharge. Besides improvement of functional status of the patient, physiotherapy reduces the overall cost of patient care in the early postoperative period. This is achieved mainly by reducing the time of stay in the hospital, but also due to the fact that patients who do physical therapy in the hospital after discharge is more likely to go home and not in a rehabilitation center, which would cost more.
Trudelle - Jackson and Smith (2004) propose and evaluate an exercise program that can be implemented from the 4th to the 12th month after endoprothesis and helps to reduce the deficit in strength and improve balance. Program exercise of Trudelle-Jackson and Smith (2004) consists of 7 exercises with load. These exercises not added any resistance, focusing on flexion of the abdominal muscles during all exercises to improve the stability of the body. Exercise should be done properly and slowly. Each exercise is repeated 15 times 3-4 times a week for about eight weeks. PNF application of models and techniques as the primary method for functional recovery in full endoprosthesis of the hip joint is not well studied. All of the studies on functional recovery of hip and lower limbs in general have demonstrated very encouraging results. However, the use of PNF method compared with isokinetic exercises model demonstrated that stimulates improvement in muscle strength.
The technique "Stabilizing reversal» enhances muscle strength and stability of the body, something necessary for physiological walking, especially in adults. Moreover, stimulate mutual function of the muscles of the body in functional activities used to reduce pain, facilitates the dissolution and increases the volume of traffic. The stability of the body (central control) is a prerequisite for human posture - and traffic is preceded by facilitating the movement of limbs.
Keywords: postoperative rehabilitation, total endoprotesis.

INTRODUCTION

The total endoprothesis of the hip joint is one of the most successful operations in orthopedic surgery. Overcoming pain and disability, this intervention helps patients return to an active life. Worldwide, each year hundreds of thousands of hip replacement surgery are made. In recent years, shortening the period of hospitalization and clinical pathways are widely distributed in hospitals in order to reduce the cost of health care and promote patient care. Limiting downtime requires patients to achieve independence to be written in the shortest possible time. The shortened period of stay affects orthopedic patients, especially those with endoprosthesis TBS where the criteria for discharge are based on the level of independence in tasks such as moving, and stair climbing. In all hospitals throughout the postoperative period, all patients who underwent complete endoprosthesis hip, followed by a special physiotherapeutic program to acquire as many functionalities and abilities.

PNF models flexion - adduction - external rotation with knee flexion and extension in - abduction - internal rotation with upright knee, similar to the phase of lifting the legs and semi-standing phase of gait. As a rule, these models have a functional meaning to the expected standing and walking for the patient. Furthermore, application of pattern extension - abduction - internal rotation, flexion combined with stabilization in end position includes maximum engagement of muscle groups. This is important for the horizontal position of the pelvis and for development of dynamic stability - critical in stance phase.

AIM

The purpose of this study was to compare the effectiveness of two approaches for early postoperative rehabilitation of patients with total endoprothesis hip. In one method prevailed analytical exercises with single axis movements and the other composed of the driving patterns PNMO.

MATERIALS AND METHODS

The study was conducted in the period November 2016 - March 2017. It included 80 patients (42 men and 38 women) aged 65 to 75 years with total hip endoprothesis of the period of hospitalization (from the first to the eighth postoperative day). Observed patients were divided into three groups:

Group A - control group (27 people - 20 men and 7 women) who perform routine physiotherapeutic program;

Group B - experimental group (27 people - 18 men and 9 women), which in addition to routine methodology for group A be applied additional active exercise in bed;

Group V - PNF experimental group (26 people - 14 men and 12 women), which in addition to routine methodology for group A applied program, including PNF models and techniques.

Comparing the effectiveness of two physiotherapeutic methods before and after the treatment:

a) an active amount of movement in the hip joint - flexion and abduction;

b) testing the functionality of the test patients ILOA;

To establish the statistical dependence between the differences and successive groups studies quality indications used $\chi 2$ - Pearson criterion and corresponding levels of significance.

Normality of the distribution of quantitative signs and the existence of differences in variance was verified by statistical tests Kolmogorov-Smirnov and Levene and their respective level of significance $p > 0,05$.

To establish the statistical dependence of the differences between the groups used analysis of variance for independent samples (F-Fisher criterion) and its corresponding level of significance and statistical significance for the growth of each group - t-criterion of Student for dependent samples.

Results. Mean values and results of the statistical analysis of data from the comprehensive assessment of the functional ability ILOA are set out in Table 1.

ILOA	Group	Mean	St. deviation	N
1 measurment	Group A	43,31	3,86	27
	Group B	42,38	3,124	27
	Group V	37,92	2,253	26
2 measurment	Group A	38,46	3,55	27
	Group B	37,15	2,304	27
	Group V	33,23	2,713	26

Table 1: Assessment of function ILOA

From the results of Table 1 show the behavior of the groups with respect to the dependent variable "functionality" in each measurement separately. It is evident that all three groups showed a statistically significant difference from the first to the second measurement. Furthermore, the results show that the group V (application of functional exercise PNF) demonstrated a statistically significant difference in the two measurements, both the exercise group and the control group. There were no statistically significant differences between the group of exercise and control group.

Statistically significant differences between the groups follow exclusively by tests on the level of support and the value for use of aid has remained stable in all groups.

Data on active volume of flexion of the hip, showing changes in the follow-up period are presented in Table 2.

There was no statistically significant interaction of factors "group" x "measure" the level of significance p = 0,05, p = 0.360

ROM flx	Group	Mean	St. deviation	N
1 measurment	Group A	25,23	10,764	27
	Group B	25,38	8,221	27
	Group V	33,15	9,109	26
2 measurment	Group A	46,92	10,12	27
	Group B	49,08	7,879	27
	Group V	51,62	7,006	26

Table 2: Active range of motion flexion in the hip

From the results shown in Table 2 shows the behavior of the groups in terms of the dependent variable "active volume of flexion at the hip» in each measurement separately. The result is that the groups did not show statistically significant differences.

Active volume of abduction in hip Presented in Table 3 averages reflect changes in the volume of abduction of the hip operated limb. There was no statistically significant interaction of factors «Group» x «measurement» level of significance p = 0,05, p = 0.784.

ROM abd.	Group	Mean	St. deviation	N
1 measurment	Group A	10,08	4,132	27
	Group B	11,38	3,82	27
	Group V	12,38	3,042	26
2 measurment	Group A	13,69	1,932	27
	Group B	12,62	1,895	27
	Group V	13,15	1,519	26

Table 3: Active range of motion of abduction of the hip

In the results of Table 3 shows the behavior of the groups in terms of the dependent variable "active volume of abduction hip» in each measurement separately.

As for the results for the volume of traffic in TBS, estimates show that none of physiotherapeutic methods did not significantly improve the volume of traffic. This result is unexpected. In the standard program (described for group A), changing the position of the occipital lying in the seat and standing and walking require specific muscle strength and mobility of the joints, which no doubt has been achieved in procedures. This may explain the existence of differences (though not statistically significant) between the first and second measurement for an active range of motion in flexion and abduction in all groups. It should be clarified that for some patients, the presence or absence of the volume of traffic is associated with postoperative pain level. In addition to the standard program, active abduction (Group B) do not seem to show any differences between groups A and B. One of the objectives of PNF program (group V) is to improve the stability in TBS and in this regard, does not affect the mobility of the joint. Obviously, functional exercises implemented by PNF and implementation of free active exercises can help increase the volume of traffic in TBS patient.

By comparing the results from the measurement of the active volume of abduction at the hip with the results of ILOA can be seen that the small increase in the mobility of the hip does not affect especially the functional outcome of the tests, because these activities do not require greater active volume.

CONCLUSION

Our experimental study shows an interesting scientific and practical results about the implementation of PNF methods in the early postoperative period after total hip endoprosthesis. We created and approbation two KT techniques. The analysis of the data obtained confirmed our working hypothesis that physiotherapeutic methodology with PNF principles and techniques suitable for early postoperative period after total hip endoprosthesis. Her complex and functional impact for the specific activities allows patients to be more independent and meaningful in their daily lives.

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